

IN THE CLAIMS

1. (Currently Amended) A method for cell replication comprising:
receiving a request for data transmission through a crossbar and a corresponding
mapping information, the mapping information received ~~by the crossbar and received~~
from one of a plurality of software configurable registers by the crossbar and a scheduler,
the mapping information indicative of a destination slot and a backup destination slot to
which the data is to be transmitted; and

replicating the data by transmitting the data to the destination slot and to the
backup destination slot when the data arrives at an input slot of the crossbar.

2. (Currently Amended) The method of claim 1 further comprising
determining whether the destination slot and the backup destination slot to grant the
request are available, the availability determined by a the scheduler.

3. (Original) The method of claim 2 further comprising transmitting a
control signal to the crossbar once availability is confirmed, the control signal transmitted
by the scheduler and indicative of the availability of the destination slot and the backup
destination slot.

4. (Original) The method of claim 3 further comprising sending an
acknowledgment back to a source of the request.

5. (Currently Amended) An apparatus for cell replication comprising:

a crossbar to direct data traffic; and
a plurality of software configurable registers coupled to the crossbar; and
a scheduler coupled to the crossbar and the plurality of software configurable
registers, the cross bar and the scheduler being coupled to receive mapping information
from the plurality of software configurable registers, the scheduler comprising a plurality
of signal inputs and a plurality of signal outputs and configured to provide control signals
to the crossbar, the plurality of signal inputs being requests for data transmission through
the crossbar, and the plurality of signal outputs being grants to the requests, data for
which a request for transmission is being granted by the scheduler ~~is- to be~~ replicated and
processed through the crossbar to a destination slot and to a backup destination slot
according to ~~software~~ configurable the mapping information.

6. (Currently Amended) The apparatus of claim 5 wherein the crossbar is
~~further comprised of a plurality of data in signals and a plurality of data out signals and is~~
a spatial crossbar and has a plurality of data in signals and a plurality of data out signals.

7. (Currently Amended) The apparatus of claim 6 ~~further comprising a~~
~~plurality of registers coupled to the crossbar and the scheduler, the plurality of registers~~
~~being software configurable and configured to provide the mapping information to the~~
~~crossbar and the scheduler, wherein~~ the mapping information identifies the data out
destination slots of the crossbar to which data is to be transmitted through the crossbar.

8. (Currently Amended) The apparatus of claim 7 wherein each of the plurality of software configurable registers corresponds with one of the plurality of data in signals of the crossbar.

9. (Currently Amended) The apparatus of claim 8 wherein each of the plurality of software configurable registers corresponds with a sequential one of the plurality of data in signals of the crossbar.

10. (Currently Amended) The apparatus of claim 8 wherein the scheduler receives mapping information indicative of the destination slot and the backup destination slot from at least one of plurality of software configurable registers ~~the register~~ when a request comes in to one of the plurality of input slots.

11. (Currently Amended) The apparatus of claim 10 wherein the scheduler is configured to determines whether the destination slot and the backup destination slot as identified by the mapping information for the specific input slot are available.

12. (Currently Amended) The apparatus of claim 11 wherein the scheduler is configured to transmits a control signal to the crossbar which indicates that data in slot is permitted to send a cell to its intended the destination slot and the backup destination slot once the availability is confirmed.

13. (Currently Amended) The apparatus of claim 12 wherein the scheduler is configured to sends an acknowledgment back to a source of the request.

14. (Cancelled)

15. (Currently Amended) A network switch system comprising:
a plurality of processor cards comprising a central processing unit and high level
software;
a plurality of switch cards coupled to the plurality of processor cards and
implemented with a cell replication feature, the plurality of switch cards comprised of a
plurality of switch planes; and
a plurality of line cards coupled to the plurality of switch cards, the plurality of
line cards to interface the plurality of switch cards with traffic coming in and out of a
plurality of physical ports, wherein the cell replication feature further comprises:
a crossbar to direct data traffic; and
a scheduler coupled to the crossbar, the scheduler comprising a plurality of signal
inputs and a plurality of signal outputs and configured to provide control signals to the
crossbar, the plurality of signal inputs being requests for data transmission through the
crossbar, and the plurality of signal outputs being grants to the requests, data for which a
request for transmission is being granted by the scheduler is- to be replicated and
processed through the crossbar to a destination slot and to a backup destination slot
according to software configurable mapping information.

16. (Currently Amended) The system of claim 15 wherein the crossbar is
~~further comprised of a plurality of data in signals and a plurality of data out signals and is~~
a spatial crossbar and has a plurality of data in signals and a plurality of data out signals.

17. (Previously Presented) The system of claim 16 further comprising a plurality of registers coupled to the crossbar and the scheduler, the plurality of registers being software configurable and configured to provide the mapping information to the crossbar and the scheduler, the mapping information identifies the data out destination slots of the crossbar to which data is to be transmitted through the crossbar.

18. (Currently Amended) The system of claim 17 wherein each of the plurality of registers corresponds with one of the plurality of data in signals of the crossbar.

19. (Currently Amended) The system of claim 18 wherein each of the plurality of registers corresponds with a sequential one of the plurality of data in signals of the crossbar.

20. (Currently Amended) The system of claim 19 wherein the scheduler is configured to receives mapping information indicative of the destination slot and the backup destination slot from at least one of the plurality of registers the register when a request comes in to one of the plurality of input slots.

21. (Currently Amended) The system of claim 20 wherein the scheduler is configured to determines whether the destination slot and the backup destination slot as identified by the mapping information for the specific input slot are available.

22. (Currently Amended) The system of claim 21 wherein the scheduler is configured to transmits a control signal to the crossbar which indicates that data in slot is permitted to send a cell to its intended the destination slot and the backup destination slot once the availability is confirmed.

23. (Currently Amended) The system of claim 22 wherein the scheduler is configured to sends an acknowledgment back to a source of the request.

Claims 24 – 32 (Cancelled)

33. (Currently Amended) A machine-readable medium that provides instructions, which when executed by a machine, cause said machine to perform operations comprising:

receiving a request for data transmission through a crossbar and a corresponding mapping information, the mapping information ~~received by the crossbar and~~ received from one of a plurality of software configurable registers by the crossbar and a scheduler, the mapping information indicative of a destination slot and a backup destination slot to which the data is to be transmitted; and

replicating the data by transmitting the data to the destination slot and to the backup destination slot when the data arrives at an input slot of the crossbar.

34. (Currently Amended) The machine readable medium of claim 33 further comprising determining whether the destination slot and the backup destination slot to grant the request are available, the availability determined by a the scheduler.

35. (Previously Presented) The machine readable medium of claim 34 further comprising transmitting a control signal to the crossbar once availability is confirmed, the control signal transmitted by the scheduler and indicative of the availability of the destination slot and the backup destination slot.

36. (Previously Presented) The machine readable medium of claim 35 further comprising sending an acknowledgment back to a source of the request.

37. (New) An apparatus for cell replication, comprising:
means for receiving a request for data transmission through a crossbar and a corresponding mapping information, the mapping information received from one of a plurality of software configurable registers by the crossbar and a scheduler, the mapping information indicative of a destination slot and a backup destination slot to which the data is to be transmitted; and

means for replicating the data by transmitting the data to the destination slot and to the backup destination slot when the data arrives at an input slot of the crossbar.

38. (New) The apparatus of claim 37, further comprising
means for determining whether the destination slot and the backup destination slot
as identified by the mapping information for the specific input slot are available; and
means for transmitting a control signal to the crossbar which indicates that data in
slot is permitted to send a cell to its intended the destination slot and the backup
destination slot once the availability is confirmed.